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ABSTRACT

The development of an operational model that would enable a college institutional research unit to improve administrative decision-making by expanding its data base to include new activities not widely recognized throughout the institution is considered. Attention is directed to institutional research as a function within an institution, specifically medium and large universities, both public and private. The evolving role of the institutional research function is traced historically, and the Arizona State University is considered as a case study. It is suggested that the relationship between the outputs of the institutional research office and the policy formulation and decision-making activities of the university is important. Based on the Arizona State University case study, the following requirements for an operational model for the institutional research unit are proposed: the model must be user-focused, anticipatory and dynamic, iterative and approximate, prescriptive rather than descriptive, and comprehensive rather than solely empirical. In line with these characteristics, it is suggested that an appropriate model for contemporary institutional research might be a policy analysis model. This type of model might involve study of what a decision-maker wished to accomplish, finding alternative ways of achieving the objectives, comparing alternatives in terms of their impacts, and an iterative approach. Implications include the fact that the use of a problem criterion would be the basis in conceptualizing and designing work activity, and that emphasis would be directed to the development of new data sources and analytic capabilities. (SW)

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A MODEL FOR INSTITUTIONAL POLICY ANALYSIS: THE CASE OF STUDENT FINANCIAL AID

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This paper was presented at the Twenty-First Annual Forum of the Association for Institutional Research held at the Leamington Hotel in Minneapolis, Minnesota, May 17-20, 1981. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Mary Corcoran
University of Minnesota
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A MODEL FOR INSTITUTIONAL POLICY ANALYSIS: THE CASE OF STUDENT FINANCIAL AID

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"The crux of institutional research activity lies in providing decision-influencing information to those who govern and manage higher education institutions. The uncertainties of the next two decades will demand technical intelligence on a broad range of educational issues." This statement is from the cover letter for the 1981 AIR Forum call for papers. It is a clear and succinct description of the potential role of institutional researchers in the formulation of policy analysis for their colleges and universities. This paper concerns that role and we use the case of student financial aid as an example of "...providing decision-influencing information..." on functions which in many institutions are not part of the regular network of data resources which institutional researchers can use to influence policy analysis.

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[1]Fenske is a professor of higher education; Parker is the Director of Institutional Studies and Planning. The authors are grateful to Ms. Meredith Snapp and Mr. Paul Zuzich for their assistance in preparing this paper. Both are doctoral students in the Department of Higher and Adult Education at Arizona State University. Ms. Snapp contributed significantly to the review of literature; many of the ideas on policy analysis were contributed by Mr. Zuzich. Finally, special thanks are due to Joseph J. Matt of Arizona state University for his review and suggestions.

This paper describes the development of an operational model of how an institutional research unit can improve administrative decision-making within the institution by selectively expanding its routine data bases to incorporate newly emergent or obscure programs or functions that are vital to policy analysis. The institutional research unit can identify, analyze and report the significance and interrelationships of activities not recognized widely throughout the institution. The specific activity focused on in this study is student financial aid, although the model may be applied to others like affirmative action or institutional advancement.

The paper comprises three sections. The first reviews the evolving role of institutional research within an institution. For example, some institutional research units operate with a measure of independent initiative in selecting and studying topics, others are primarily involved with the routine filling out of forms, and others have evolved into a coordinating and policy analysis function.

The second section describes the case of a specific activity (student financial aid) at a large public university. We demonstrate that although student financial aid now represents in this case over 30 million dollars annually, or about 30 percent of the university's 1980-81 operating budget, the significance of its role is not yet fully understood by central administration. Our data analyses show that student financial aid has a profound impact on many vital aspects of the institution's policies (such

as admissions and tuition levels), operations (such as budgeting and physical facilities), and future planning (such as enrollment projections).

The final section summarizes the potential value and shortcomings of the proposed model, discusses how it may be generalizable to other functional areas, and relates it to the continuing evolution of the role of institutional research within an institution of higher education. Activation of the model could create an opportunity for institutional research to become less of a passive provider of data to administration and more of an active participant in central decision-making and policy analysis.

I. The Evolving Role of Institutional Research

A considerable body of literature has developed on the subject of the role of institutional research. In fact, it would be possible to adopt an historical approach to the subject since some of the earliest writings date back twenty years or more and, in turn, refer to organized institutional research activities in the earliest history of American higher education. We are more concerned here with the current scene and future directions, however, and will only refer briefly to the recent genesis of the field.

Our focus is on institutional research as a function <u>within</u> an institution, and the type of institutions with which this paper is concerned are the medium and large university, both public and private (although some extrapolation may be made to other types such as large community colleges).

In simpler and bygone times, when administration was done by academics who "took a turn at deaning" (and sometimes found it a permanent assignment), institutional research was typically done by faculty committees to solve some critical academic, financial, or student-related problem. A professional function (or at least the continuing practice) of institutional research originated in many universities with preparation for regional or other institutional accreditation. In other institutions, an office or bureau of educational research, often located within the school or college of education, was the vestigial continuance of the accreditation studies, although many such offices originated from recurring student studies when professors of educational psychology discovered the attractions of studying captive populations. In any case, however, the emphasis was on institutional self-study.

In the late 1950's and early 1960's universities quickly became larger and much more complex. Their involvement with the federal government and the emerging press for accountability by both the federal and state governments coincided with the development of operations research and its application to higher education. These developments and others led institutional research generally into a data gathering, analysis and reporting mode which was a distinct departure from the earlier one of academics studying themselves and their student populations. The new mode required data crunchers familiar with the new technology of computerized data processing, and the new sophistication by 1970 was typified by the term "management information systems."

academics studying themselves and their student populations. The new mode required data crunchers familiar with the new technology of computerized data processing, and the new sophistication by 1970 was typified by the term "management information systems."

It was about this time that the late Sid Suslow of the University of California at Berkeley tried to deal with the contemporary and future role of institutional research from his vantage point as president of the Association for Institutional Research. In A Declaration on Institutional Research, published by AIR in 1972, Suslow tried to mediate between the historical and the contemporary roles, that is, to deal with the inherent conflict between institutional research as self-study from an academic view point versus functionaries providing data on demand to institutional administrators and to external entities like the federal and state governments.

The concept of self-study became truly vestigal by the early 1970's as it fell into the widening gap between faculty interests in contract research and administrators who were increasingly recognized as a separate breed of managers and no longer simply faculty on special assignment. Institutional research units that could not metamorphasize quickly into data producers for management information systems were either relegated to filling out forms and questionnaires, or were simply wiped out, sometimes summarily. In rare instances a dubiously humane solution was to allow the left- over director the privilege of continuing academic-type studies with little resources and even

less attention paid to the results: "Forgotten, but not gone" as is often said in academe.

However, there were problems too with the newer management information function. The demand for data grew so quickly and encompassed such varied demands that it was the rare IR unit that could expand quickly enough with sufficient varieties of expertise to satisfy the managerial needs, especially in the larger of the complex new "multiversities." As a result, many central administrators in these institutions became impatient with the inadequate services of the IR unit and developed their own research capabilities within their own domains (Fenske, 1970). The function of institutional research became fragmented among academic administration, financial affairs and student services. Often the IR unit became not a central or institution-wide function, but one that specialized in the area to which it directly reported under the axiom that "whoever pays the piper calls the tune." In certain cases there were special problems when the IR director's interests and area of expertise did not match the area of responsibility, e.g., an educational psychologist interested in student motivation studies reporting to the Vice President for Business and Finance.

In 1972 Suslow envisioned IR as a "third force" mediating between the academic and administrative communities. That role materialized in only a few institutions, and in those only because of the stature of extremely capable institutional researchers who were also adept at institutional and academic politics.

vital opportunities emerging for units that could coordinate and somehow integrate for purposes of policy analysis the confusing welter of data that floods into the central administration. In data communication terms, if an IR unit can convert the "noise" into coherent messages for administrators faced with almost weekly crucial policy decisions, their services will be invaluable and this will be reflected in status and recognition.

One of the "noisy" problems is uncoordinated, inadequate data from newly emergent but vitally important functions of the university such as student financial aid. This function typifies the lag between the reality of functional relationships and the entrenched organizational structure. A basic premise is that at any given point in time the organizational structure does not accurately reflect the relative functional importance of the units which comprise the structure. This situation can be detrimental to effective decision-making. We suggest that an institutional research unit that is in a coordinating and interpretive role can selectively expand its data bases to identify such newly important activities, locate and coordinate relevant information about their signficance and interrelationships with outer institutional functions, analyze this data in relation to institutional policies, operations and planning and report the results of this analysis to central administration.

II. A Case Study: Arizona State University

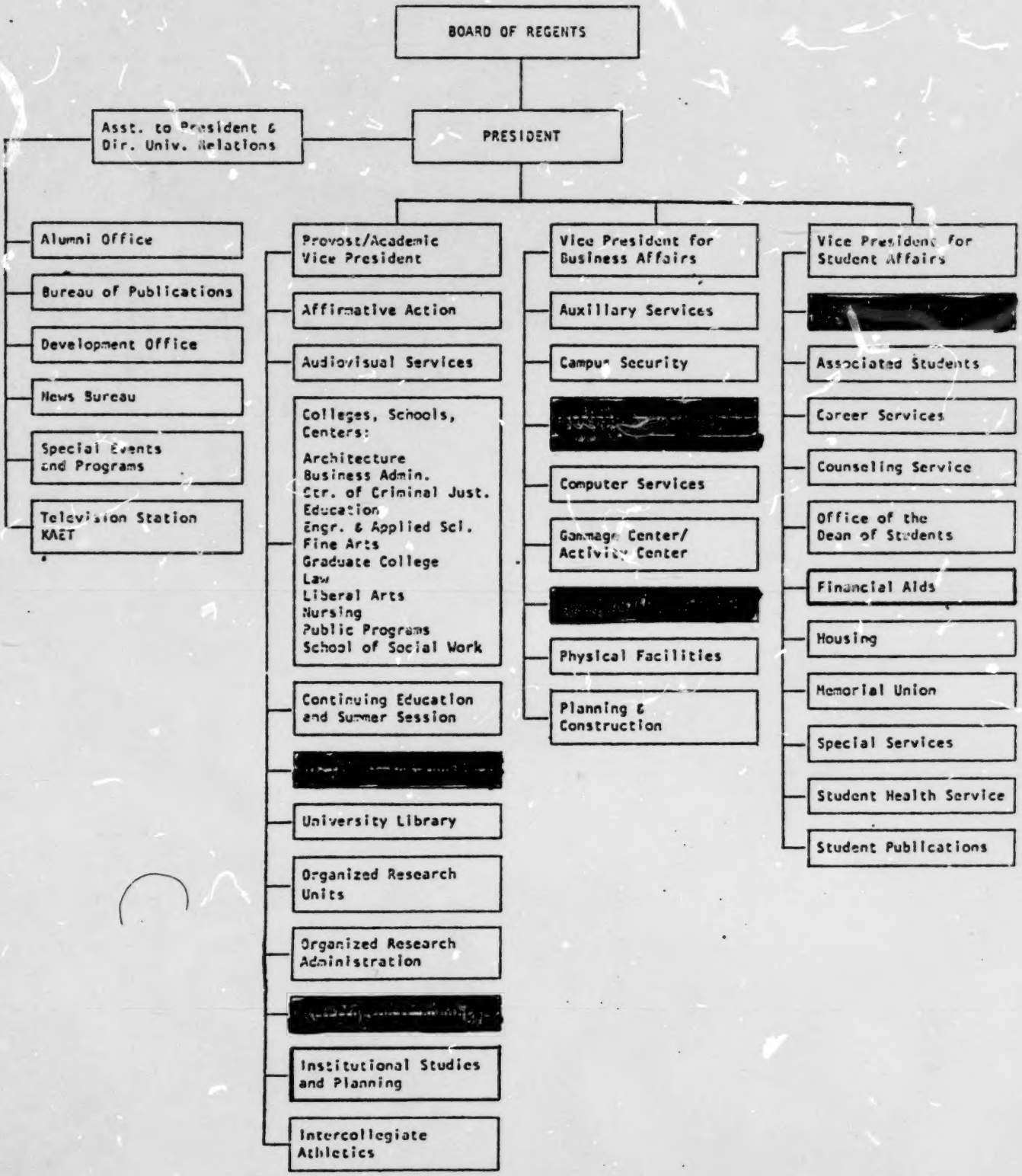
Arizona State University is a large urban university with an enrollment of 38,000 headcount students. The University has grown rapidly during the last ten years, having experienced an annual growth rate of 1,100 headcount students during that period.

The organization of the University (see Figure I) is similar to that of most large universities in the United States. All principal functional responsibilities have been delegated by the President to one of three Vice Presidents or to the Assistant to the President who also serves as Director of University Relations. Within that structure, the Office of Institutional Studies and Planning reports directly to the Provost/Academic Vice President.

The Office of Institutional Studies and Planning (OISP) has been assigned all of the usual institutional research responsibilities. In addition, the Office is active in sponsored research and is often asked to perform major planning studies. The information used by the Office in the discharge of its responsibilities may be obtained from any office or unit within the university and/or, to an increasing degree, from sources external to the university. However, there are five offices within the university that provide 95 percent or more of all internally generated information used by OISP. These offices are: (1) Undergraduate Admissions, (2) Registrar, (3) Personnel Office, (4) Institutional Budgets and (5) Comptroller, and are shown as shaded areas in Figure I.

FIGURE I

ARIZONA STATE UNIVERSITY
ADMINISTRATIVE ORGANIZATION



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On occasion OISP is asked to perform planning analyses that require significant amounts of data from other offices within the University. Frequently these planning analyses are severely time constrained. The result is that compromises must often be made with regard to the quantity and/or quality of such data.

The Office of Financial Aids is illustrative of this set of circumstances. This office does not routinely provide data to OISP. Under enormous pressures to maintain and increase service to students, to provide equity in the distribution of funds and to be continually in compliance with all legal requirements, the Office of Financial Aid is not data oriented. Yet, important transactions are occurring within this office that should be measured and recorded in machine-readable form.

Two important responsibilities of the Office of Institutional Studies and Planning are to estimate enrollment and to estimate total revenues from student fees and tuition. The spending authorization for the operating budget is in large part a function of student enrollment. And, the legislative appropriation is calculated on the basis of the estimate of total revenues from student fees and tuition (appropriation = authorization - fee/tuition revenue). In the past these important estimates could be and were made with reasonable accuracy without consideration of the impact of financial aids.

In the last few years, however, several changes have been occurring which make it impossible to develop estimates from which the operating budget and legislative appropriation are derived

without explicit recognition and careful consideration of student financial aid data: (1) the number of students making use of financial aid assistance has increased, (2) federal support of financial aids has increased, (3) the costs of goods and services required by students have increased, (4) non-resident tuition at Arizona State University has increased from $1,500 to $3,000 per academic year, and (5) the enrollment of resident undergraduate students has stabilized and is no longer increasing.

It is clear that the University must continue, for budget purposes, to make estimates of enrollment and fee/tuition revenues. It is also clear that provision will have to be made to incorporate data from the financial aid office in the development of these estimates. However, the financial aids office, with its lack of data orientation, has not compiled the type of data that can be readily used to make estimates. The data which are available are fragmentary, not internally consistent and are incomplete. As such, the estimates of enrollment and fee/tuition revenue, for the time being, will have to be made without a fully developed appreciation of the impact of student financial aid.

The developing significance of the financial aid office is depicted in Table I. Total dollars awarded have increased from $5,858,285 in 1971 to $32,401,617 in 1980. In 1971 financial aid awards to students as a percentage of the university operating budget was 15.2 percent; by 1980 this percentage had increased to almost 30 percent. During this period the total number of awards more than doubled, having increased from 10,808 in 1971 to over 24,000 in 1980.

TABLE I

Comparison of Financial Aid and Operating Budget

Year	Financial Aid Funds	Total Operating Budget	Comparison of Financial Aid to Total Budget
1971	$5,858,285	$38,557,800	15.2%
1972	5,798,246	41,866,400	13.8%
1973	6,391,490	46,468,600	13.8%
1974	10,305,555	53,506,400	19.3%
1975	14,344,326	59,001,700	24.3%
1976	15,060,662	66,347,000	22.7%
1977	15,671,431	73,162,800	21.4%
1978	17,535,007	82,266,600	21.3%
1979	22,322,462	90,630,000	24.6%
1980	32,401,617*	108,656,600	29.8%
Ten Year Percentage Increase	553%	282%	

*As of May 1, 1981

Unfortunately, our knowledge of the impact of financial aids at Arizona State University has not improved during this period. The reason is lack of data. During this same period the university has gone through three computer conversions. Just to maintain previously existing data systems capabilities has strained the resources of the Office of Institutional Studies and Planning. The development of new data systems capabilities was, until recently, out of the question.

In September 1980, OISP was the recipient of a grant from the Fund for the Improvement of Postsecondary Education (FIPSE) which was for the purpose of developing improved methods for the allocation of student financial aids funds. As part of this research, OISP has undertaken the development of a financial aids information data base. The data base development effort is still in progress. To date it has required more than ten man-months of work, and will require several more months before completion can be expected. None of this work could have been performed without the grant assistance from FIPSE.

The material presented in this case study is indicative of a major dilemma for contemporary institutional research. As universities and colleges change in response to their changing environment, so also will their information requirements if problem-solving is to be effective and policy formulation enlightened. If offices of institutional research are to respond to the changing information requirements of colleges and universities, they will need to develop new sources of information

and new data system capabilities. However, new data systems development, no matter how urgently needed, is expensive and time consuming. Without additional resources or some relief from existing responsibiltiies, offices of institutional research will find it difficult, if not impossible to develop the new data systems capabilities that will be so very necessary in the changing decade of the 1980's.

III. The New Realities: A Policy Analytic Approach

The realities of the 1980's will require new responses from the higher education community. Facile assumptions regarding the worth of our product will no longer be acceptable. Policy formulation and institutional decision-making will need to be improved; not only in a qualitative sense, but also in terms of efficiency and effectiveness.

When the new realities of the '80's begin to impact higher education, institutional research as a profession and functional activity will face much more of a problem than the periodic identity crises of the past. The conventional role of institutional research, if not transformed and recast, will prove to be increasingly inadequate. Conditions and imperatives will be so different from those that characterized the period 1945-1980, that the changes that will be necessary for the survival of institutional research will have to be of kind, rather than in degree.

The old ideas of self study, of semi-autonomous operation, of the assumption that the widespread distribution of high quality information will automatically result in the improvement of policy-formulation and decision-making, are no longer viable, if indeed they ever were. Institutional research in the 1980's will have to become a load-bearing functional activity.

To develop a load-bearing posture, institutional research will have to influence and support policy formulation and institutional decision-making in new ways. The relationship between the outputs of the institutional research office and the policy formulation and decision-making activities of the university/college will have to be unequivocal and significant. For this to occur, no less than a new operational model for the profession of institutional research will be required.

Such a model can be derived from a careful inspection of the case study described in the previous section. Several requirements are apparent: (1) the model must be user-focused, (2) the model must be anticipatory and dynamic, (3) the model must be iterative and approximate, (4) the model must be prescriptive, rather than descriptive, and (5) the model must be comprehensive, rather than solely empirical. These characteristics suggest that an appropriate model for contemporary institutional research might well be a policy analysis model.

Policy analysis is a relatively new concept which has been developed within the field of public administration. Quade defines policy analysis in the following way:

> In a broad sense policy analysis may be defined as any type of analysis that generates and presents information in such a way as to improve the basis for policy-makers to exercise their judgment.

And further,

> Operations research, systems, cost-benefit and cost-effectiveness analyses are all of this type, although they all tend to slight certain aspects such as the political and organizational problems associated with decision-making and its implementation (p. 4).

As Quade suggests, policy analysis may assume many forms. Since the problems to be addressed by policy analysis are varied, so also the appropriate analysis must be varied. But in general, policy analysis should be unbiased, comprehensive and designed so that proper weightings are made to all aspects of the problem.

The general characteristics of a policy analysis model as it might be applied to institutional research are:

1. An investigation of what it is that the decision-maker wishes to accomplish;
2. A search for alternative ways of achieving the objectives;
3. A full comparison of the alternatives in terms of their impacts;
4. A consideration of all significant aspects of the problem;
5. An iterative approach (Quade, p. 20).

While the emphasis of this model is upon rational analysis, it should be clearly understood that policy analysis is not an

exact science, nor can it become one (Quade, p. 21). Some institutional researchers, having been trained in formal research methodology, will find this latter point difficult to accept. However, the goals of science and policy analysis are not the same. Science has as its goal the pursuit of truth; it seeks to understand and predict. Policy analysis, in contrast, has as its goal to enable the decision-maker to make a better choice than would otherwise have been possible. Its concern, therefore, is with the effective manipulation of the real world and not with the development of new knowledge which may be empirically verified.

The acceptance of a policy analysis model for the profession of institutional research would have several implications: (1) reduction in the volume of descriptive work, e.g., questionnaires, routine information requests; (2) increased effort in the development of new data sources and new analytic capabilities; (3) the use of a problem criterion for the acceptance of a work request, e.g., is there a decision to be made, who is the decision-maker; (4) the use of a problem focus and problem orientation in conceptualizing and designing work activity, e.g., does the decision-maker have a clear understanding of the problem, what are the objectives, what are the alternatives; and (5) access to decision-makers and to data sources must be assured. The impact of these implications for institutional research is profound, even revolutionary. Much of the old routine will be discarded, a significant amount of institutional research activity will become developmental with no immediate and/or direct benefits, the director of the institutional research office will

interact on a direct and frequent basis with decision-makers, and the institutional research office will need to be organizationally located so as to have direct access to data and decision-makers (probably attached to the office of the president or executive vice president).

Figures II, III and IV depict the evolution of the Office of Institutional Studies and Planning at Arizona State University from a conventional type of institutional research operation toward that of a policy analytic approach. In 1976-77 the activities of the office were largely manual and routine (63.9%) with very little non-routine analysis (12.5%) being performed. At the present time (1981-82) the office has undergone substantial change; routine activities have declined in volume (40.9%) with non-routine activities having increased (42.0%). By 1986-87 it is anticipated that the routine activities will have stabilized at about 40 percent and that the non-routine activities will have increased in volume to about 50 percent.

There are two trends in the data reported in these charts that are of special significance. The first is the shift in emphasis between the routine and non-routine activities which occurred between 1976-77 and 1981-82. Second, and most important, are the shifts in emphasis between programs which are expected to occur between 1981-82 and 1986-87. Note that the relative emphases on routine and non-routine activities are expected to change very little. The relative program emphases (with one exception) however, are expected to undergo significant change:

FIGURE II

OFFICE OF INSTITUTIONAL STUDIES AND PLANNING

1976-77 PROGRAM COST MODEL: TRADITIONAL OPERATION

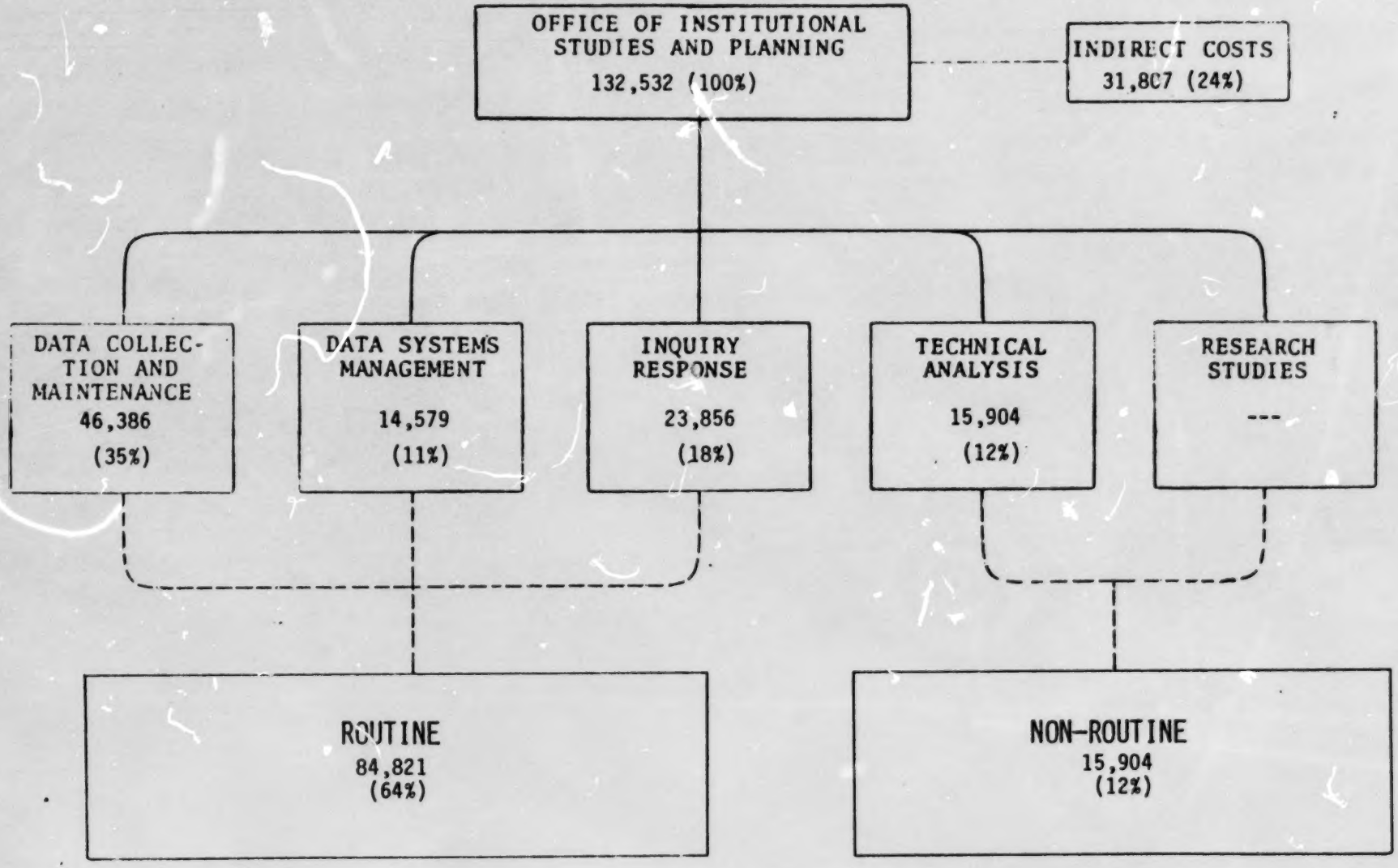


FIGURE III

OFFICE OF INSTITUTIONAL STUDIES AND PLANNING

1981-82 PROGRAM COST MODEL: TRANSITIONAL OPERATION

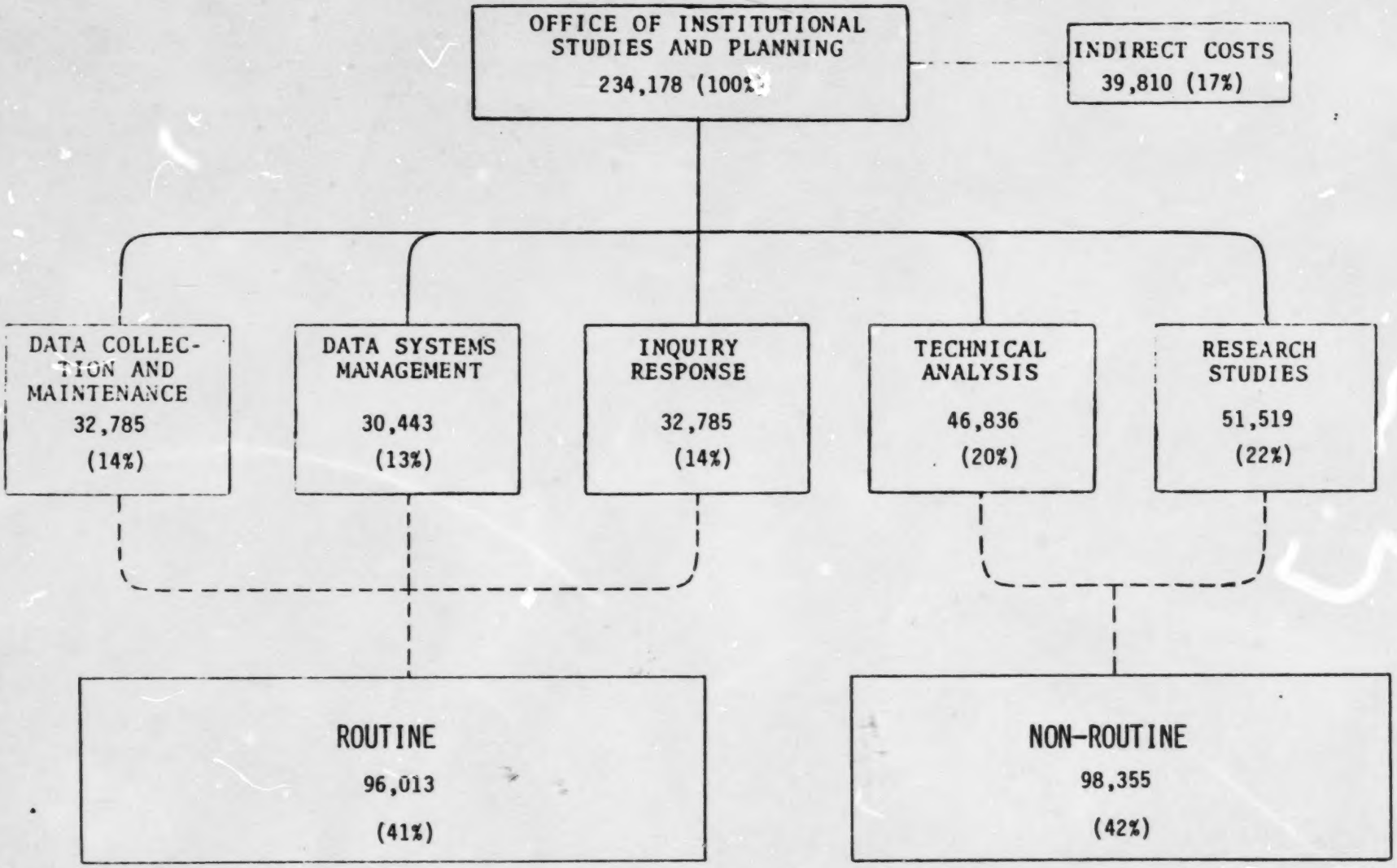
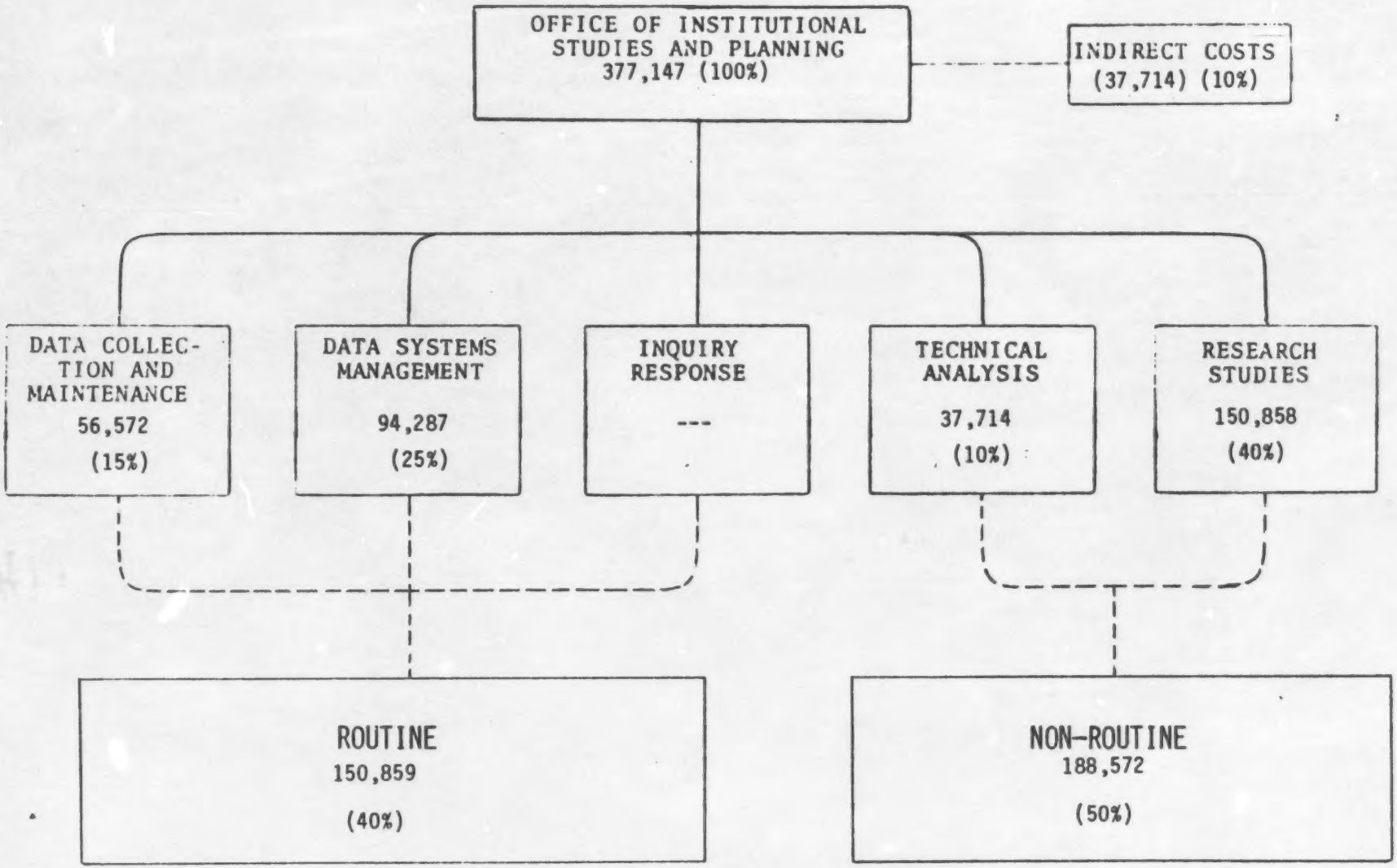


FIGURE IV

OFFICE OF INSTITUTIONAL STUDIES AND PLANNING

1986-87 PROGRAM COST MODEL: POLICY ANALYTIC OPERATION



(1) data systems management will increase from 13 percent to about 25 percent, (2) inquiry response will no longer have separate program identity; residual inquiry response activities having been absorbed by either data systems management (HEGIS, AAUP) or technical analyses (ACE, selected information requests), (3) technical analyses will decline from about 20 percent to 10 percent, and (4) research studies (policy analytic activities) will increase from 22 percent to about 45 percent.

In sum, the new realities of the 1980's are suggestive of the need for a change in the institutional research function. No longer will the mere preparation and dissemination of data constitute a meaningful role on the university/college campus. More will be required; participation in policy formulation and decision-making, data interpretation, the development of alternatives and recommendations. The new role model for institutional research, perhaps, as suggested in this paper, based on policy analysis, will require fundamental changes in the structure and functioning of the institutional research office; changes which will closely resemble those which are now in progress at Arizona State University.

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